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05/31/2001

Steve West

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05/19/2004

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EXAMINER

MEHRA, INDER P

ART UNIT

PAPER NUMBER

2666

17

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/872,125

Applicant(s)

WEST ET AL.

Examiner

Inder P Mehra

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 3/5/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-10,19,20,22-27,29-34 and 36-77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-10,19,20,22-27,29-34 and 36-77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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***Response to Amendment***

1. This is in response to an amendment Response dated 3/5/04 which has been fully considered and made of record. Based on amendments A, B and C, claims 1 (amended thrice- amendments A,B and C) , 3 (amended once in C), 9 (amended twice in B and C) , 19 (amended once in C), 22-27 (amended once in C), and 29-34 (amended once in C) have been amended. Claims 22-35 were added in amendment B, claims 36-77 have been added in amendment C. Claims 5 and 21 were cancelled in amendment B dated:12/27/02. Claims 2, 4, 11-18, 21, 28 and 35 have been cancelled (Amendment C dated: 4/21/03). Claims 1, 3, 6-10, 19-20, 22-27, 29-34 and 36-77 are now pending.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in 3section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 6-9, 19-20, 22 - 27, 29-34, 36-40, 42-46, 48-52, 54-58, 60-64 , 66-70, 72-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline, in view of **Kilkki et al** (US Patent No. 6,411,617), hereinafter, Kilkki, further in view of **Brueckheimer et al** (US Patent No. 6,574,223), hereinafter '223.

For claims 1, 3, 36, 42, 48, 54, 19-20, 22-27, 29-34, 60, 66, and 72-77, Kline discloses switch mesh fabric 154 in figs 5, 6, 7 and 8, ATM data is transmitted across the switch, refer to col. 10 lines 17 and 25. Kline discloses, in reference to figs.4, 5, 6, 7 and 8, **mesh** switch fabric

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154, refer to col. 10 line 25; ingress physical ports 160 sub 1-4, fig. 5, (ingress interface); egress physical ports 162 sub 1-4, fig. 5, (egress interface); **schedulers 208 and 280 (scheduler)**, the ingress interfaces 140, fig. 6, to receive data from external sources, source end systems (SES 102 fig. 4) and to transmit ATM cells across mesh switch fabric 154 to the egress interface 146, fig. 6, egress interface 162 to receive data from the asynchronous mesh 154 and to transmit to external destination 160. Switch shown in fig. 5 is bi-directional.

Further Kline discloses, as recited in claims 11 and 19, plurality of ingress cards 141 and 145 and plurality of egress cards 142 and 146, refer to fig. 6, and col. 12 lines 33-36; each of the ingress card comprises scheduler 208 for ingress and 280 for egress port, refer to, refer to figs. 5 and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25;

Kline discloses equal number of ingress and egress ports ( $N=M$ ), as recited in claim 20, refer to fig. 5;

Kline does not disclose expressly if switch fabric is asynchronous mesh. However, fabric includes buffer 206 wherein the ingress data is stored for eventual scheduled transmission of ATM data under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25. There is a transmission of ATM data which is asynchronous transfer mode, refer to col. 1 lines 15-22 and col. 25 lines 58-67. Further, ingress port is connected with egress port and there is no clock involved. These details support the definition of asynchronous switch fabric 120 in fig. 6, refer to col. 10 line 25. Further, Kline discloses that switch fabric can be mesh switch fabric, which means that each ingress port is

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connected with each egress port, refer to figs. 5 and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25.

Kline discloses, "wherein one or more of the N ingress interfaces segregates incoming data into queues based on a service class identifier (refer to claims 1 and 19); user identifier (refer to claims 23 and 30, ); session identifier (refer to claim 24 and 31); service (QOS) identifier (refer to claim 25 and 32); priority identifier (refer to claim 26 and 33); deadline identifier (refer to claim 27 and 34); flow identifier (refer to claim 29)", (An ingress connection identifier, a small integer, -----this ICID is used as described --to identify ---queue ---ingress processing)is computed refer to Ingress connection identifier (ICID) col. 10 lines 34-52, col. 8 lines 0-15; QOS , refer to col. 2 lines 6-10, col. 3 line 65; contracted QOS, refer to col. 12 lines 10-28;

Kline does not disclose explicitly, priority identifier--;

Kilkki discloses, priority principles, on the basis of which input traffic is segregated or discarded if low in priority, refer to col. 5 lines 40-45, and col. 13 lines 25-43.

Brueckheimer '223 discloses, "the ingress interfaces schedule and asynchronously transmit the data to the egress interfaces. The ingress interfaces schedule---data---external destinations., where the *ingress interfaces segregate incoming data into queues based on a service class identifier (e.g., priority identifier associated with the packets*", refer to "maintains queues of minicells----queue manager for ingress scheduling-----queuing structure enables **the ingress and egress schedulers to offer multi-priority connection ability to enable different QOS capabilities**", refer to col. 4 line 60 through col. 5 line 21.

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It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the capability of, "segregating incoming data into queues based on a priority identifier". The capability can be implemented by combining into ingress port, the capabilities as taught by Kilkki and Brueckheimer. The suggestion/motivation to do so would have been to segregate the traffic types based on quality of service requirements.

For claims 6-7, 37-38, 43-44, 49-50, 55-56, 61-62, and 67-68, Kline discloses, "egress interfaces generate a flow control signal---egress interfaces", (congestion control functions with the aid of ingress/egress processors 140, 142, 144 and 146), refer to col. 9 lines 5-15.

For claim 8, 39, 45, 51, 57, 63 and 69, Kline discloses, in reference to figs. 5 and 6, (ingress interfaces 160 sub 1-4, egress buffer (shared) 250 in fig. 6, egress interfaces 162 sub 1-4 in fig. 5, egress interface scheduler 280 which retrieves data from egress buffer 250 for transmission to external destinations, refer to col. 12 lines 5 through col. 13 lines 10-13.

For claims 9, 40, 46, 52, 58, 64 and 70, Kline discloses, **"the egress interfaces generate a flow control signal to prevent access by one or more queues at the ingress interfaces to the egress buffer, (explicit rate (ER)' congestion flag is set at the egress interfaces);** refer to col. 16 lines 55-67.

4. Claims 10, 41, 47, 53, 59, 65, and 71, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline, in view of **Kilkki et**

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al (US Patent No. 6,411,617), hereinafter, Kilkki, further in view of **Brueckheimer et al** (US Patent No. 6,574,223), hereinafter '223, and **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku.

Regarding claim 10, 41, 47, 53, 59, 65, and 71, Kline discloses transmission of ATM (fixed-length) cells across switch fabric 154, refer to fig. 1; and virtual connection (VC) queues 290, fig. 8 for transfer data, fig. 8;

Kline does not disclose expressly "variable length" packet transmission across the switch;

Ku further discloses external equipment 112 (ingress interface) operating in accordance with any of communication protocols, such as, ATM (fixed length) and frame relay (variable length packets utilized with in the domain 100 (network/mesh ) to destination 122 (egress interface), refer to page 3 paragraph 0042 and claims 1 and 2

A person of ordinary skill in the art would have been motivated to employ Ku's switch into Kline's switch in order to control congestion with in the network. The suggestion/motivation to do so would have been to prevent congestion and loss of packets. It would have been obvious to a person of ordinary skill in the art to include both fixed-length and variable-length packet transmission in the same network.

### ***Response to Argument***

5. Applicant's arguments with respect to claims 1, 3, 6-10, 19-20, 22-27, 29-34 and 36-77 have been considered but are not persuasive.

Applicant argues that the following limitations are absent from the cited references individually or in combination:

- the ingress interfaces schedule and transmit the data to the external destination;
- where the ingress interfaces segregate incoming data into queues based on a service class identifier (e.g., priority identifier associated with the packets).

In response it is stated that these limitations are disclosed by Kline and Kilkki, as follows:

- ATM data is transmitted across the switch 120 including **switch fabric 154**, fig.6, refer to col. 10 lines 17 and 25. Kline discloses, in reference to figs.4, 5, 6, 7 and 8, **mesh switch fabric 154** in fig. 5, refer to col. 10 line 25; ingress physical ports 160 sub 1-4, fig. 5, (ingress interface); egress physical ports 162 sub 1-4, fig. 5, (egress interface); **schedulers 208 and 280 (scheduler)**, the ingress interfaces 140, fig. 6, to receive data from external sources, source end systems (SES 102 fig. 4) and to transmit ATM cells across mesh switch fabric 154 to the egress interface 146, fig. 6, egress interface 162 to receive data from the asynchronous mesh 154 and to transmit to external destination 160. Switch shown in fig. 5 is bi-directional.
- Further Kline discloses, as recited in claims 11 and 19, plurality of ingress cards 141 and 145 and plurality of egress cards 142 and 146, refer to fig. 6, and col. 12 lines 33-36; each of the ingress card comprises scheduler 208 for ingress and 280 for egress port, refer to, refer to figs. 5 and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25;



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- An ingress connection identifier, a small integer, -----this ICID is used as described --to identify ---queue ---ingress processing)is computed refer to Ingress connection identifier (ICID) col. 10 lines 34-52, col. 8 lines 0-15; QOS , refer to col. 2 lines 6-10, col. 3 line 65; contracted QOS (which means priority preference), refer to col. 12 lines 10-28;

Kline does not disclose explicitly, priority identifier--;

Kilkki discloses, priority principles, on the basis of which input traffic is segregated or discarded if low in priority, refer to col. 5 lines 40-45, and col. 13 lines 25-43.

Further, Brueckheimer '223 discloses, "the ingress interfaces schedule and asynchronously transmit the data to the egress interfaces. The ingress interfaces schedule---data---external destinations., where the *ingress interfaces segregate incoming data into queues based on a service class identifier (e.g., priority identifier associated with the packets)*", refer to "maintains queues of minicells----queue manager for ingress scheduling-----queuing structure enables **the ingress and egress schedulers to offer multi-priority connection ability to enable different QOS capabilities**", refer to col. 4 line 60 through col. 5 line 21.

Applicant argues that no where in Kline suggests transmitting data asynchronously within the switch fabric.

In response, it is stated that ATM traffic in ATM switch via switch fabric 154 in fig. 6 is in asynchronous environment, and is , therefore, asynchronous transfer of information.

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Further, Brueckheimer '223 discloses, "a key feature of ----asynchronously over the ATM payload-----", refer to col. 9 lines 35-40.

*In light above explanation, arguments by applicant are not persuasive".*

**Conclusion**

6. Any enquiry concerning this communication should be directed to Inder Mehra whose telephone number is (703) 305-1985. The examiner can be normally reached on Monday through Friday from 8:30AM to 5:00 PM. If attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Seema Rao, can be reached on (703) 308-5463. Any enquiry of a general nature of relating to the status of this application or processing should be directed to the group receptionist whose telephone number is (703) 305-4700.

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks


Washington, DC. 20231

Or faxed to (703) 872-9314.

Hand -delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, sixth floor (Receptionist).

  
Inder Mehra

May 13, 2004

  
DANG TON  
PRIMARY EXAMINER